

*NE* 2. (Twice Amended) An isolated polynucleotide, encoding a polypeptide having, for every contiguous series of at least 30 amino acids, at least 50% identity with a peptide sequence selected from the group consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.

*D* 7. (Twice Amended) An isolated retroviral polynucleotide comprising an env gene, wherein said env gene comprises a nucleic acid having a nucleotide sequence selected from the group consisting of SEQ ID NO: 9, its complementary sequence, and sequences having, for every series of 100 contiguous monomers, at least 50% identity with SEQ ID NO: 9 or said complementary sequence.

*DZ* 8. (Twice Amended) The isolated retroviral polynucleotide according to claim 7, wherein the env gene further comprises a portion of SEQ ID NO: 9, wherein said portion starts at nucleotide 1 of SEQ ID NO: 9 and ends at nucleotide 233 of SEQ ID NO: 6.

*D* 9. (Twice Amended) An isolated retroviral polynucleotide comprising an env gene, wherein said env gene encodes a polypeptide having, for every contiguous series of at least 30 amino acids, at least 50% identity with the peptide sequence SEQ ID NO: 10.

*NE* 13. (Twice Amended) The retroviral polynucleotide according to claim 3, *→ can be* wherein said retroviral polynucleotide is associated with at least one autoimmune disease.

*D3* 14. (Twice Amended) An isolated fragment comprising a polynucleotide having a nucleotide sequence selected from the group consisting of:

(i) sequences SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 9, SEQ ID NO: 12, SEQ ID NO: 16, SEQ ID NO: 21, SEQ ID NO: 30 and SEQ ID NO: 31;

(ii) sequences complementary to sequences (i); and

(iii) sequences having, for every series of 100 contiguous monomers, at least 50% identity with sequences (i) or (ii).

*D* 15. (Twice Amended) The fragment according to Claim 14, consisting of a polynucleotide having a nucleotide sequence selected from the group consisting of:

(i) sequences SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 9, SEQ ID NO: 12, SEQ ID NO: 16, SEQ ID NO: 21, SEQ ID NO: 30 and SEQ ID NO: 31;

(ii) sequences complementary to sequences (i); and

(iii) sequences having, for every series of 100 contiguous monomers, at least 50% identity with sequences (i) or (ii).

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NR 16. (Twice Amended) An isolated fragment comprising a polynucleotide having a nucleotide sequence encoding a polypeptide having, for every contiguous series of at least 30 amino acids, at least 50% identity with a peptide sequence selected from the group consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.

D3 NR 17. (Twice Amended) The fragment according to claim 16, consisting of a polynucleotide having a nucleotide sequence encoding a polypeptide having, for every contiguous series of at least 30 amino acids, at least 50% identity with a peptide sequence selected from the group consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.

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NR 25. (Twice Amended) A diagnostic, prophylactic or therapeutic composition, in particular for inhibiting the expression of at least one retrovirus associated with multiple sclerosis and/or rheumatoid arthritis, comprising a nucleotide fragment according to claim 14.

Q4 NR 26. (Twice Amended) A method for detecting a retrovirus associated with multiple sclerosis and/or rheumatoid arthritis, in a biological sample, characterized in that an RNA and/or a DNA assumed to belong to or obtained from said retrovirus, or their complementary RNA and/or DNA, is brought into contact with a composition comprising a nucleotide fragment according to claim 14.

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Please add new claims 27-64 as follows:

~~(27)~~ The polynucleotide of claim 1, wherein the nucleic acid has a nucleotide sequence having for every series of at least 100 contiguous monomers, at least 70% identity with the sequences (i) or (ii).--

~~(28)~~ The polynucleotide of claim 1, wherein the nucleic acid has a nucleotide sequence having for every series of at least 100 contiguous monomers, at least 80% identity with the sequences (i) or (ii).--

~~(29)~~ The polynucleotide of claim 1, wherein the nucleic acid has a nucleotide sequence having for every series of at least 100 contiguous monomers, at least 90% identity with the sequences (i) or (ii).--

~~(30)~~ The polynucleotide of claim 1, wherein the nucleic acid has a nucleotide sequence having for every series of at least 100 contiguous monomers, at least 95% identity with the sequences (i) or (ii).--

PS NR --31. The polynucleotide of claim 2, wherein the polypeptide has, for every contiguous series of at least 30 amino acids, at least 70% identity with a peptide sequence selected from the group consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

NR --32. The polynucleotide of claim 2, wherein the polypeptide has, for every contiguous series of at least 30 amino acids, at least 80% identity with a peptide sequence selected from the group consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

NR --33. The polynucleotide of claim 2, wherein the polypeptide has, for every contiguous series of at least 30 amino acids, at least 90% identity with a peptide sequence selected from the group consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

*NR* --34. The polynucleotide of claim 2, wherein the polypeptide has, for every contiguous series of at least 30 amino acids, at least 95% identity with a peptide sequence selected from the group consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

*Q5* --35. The retroviral polynucleotide of claim 7, wherein the nucleic acid has a nucleotide sequence having, for every series of at least 100 contiguous monomers, at least 70% identity with the nucleotide sequences selected from the group consisting of SEQ ID NO: 9 and its complementary sequences.--

--36. The retroviral polynucleotide of claim 7, wherein the nucleic acid has a nucleotide sequence having, for every series of at least 100 contiguous monomers, at least 80% identity with the nucleotide sequences selected from the group consisting of SEQ ID NO: 9, and its complementary sequences.--

--37. The retroviral polynucleotide of claim 7, wherein the nucleic acid has a nucleotide sequence having, for every series of at least 100 contiguous monomers, at least 90% identity with the nucleotide sequences selected from the group consisting of SEQ ID NO: 9, and its complementary sequences.--

--38. The retroviral polynucleotide of claim 7, wherein the nucleic acid has a nucleotide sequence having, for every series of at least 100 contiguous monomers, at least 95% identity with the nucleotide sequences selected from the group consisting of SEQ ID NO: 9, and its complementary sequences.--

*NR* --39. The isolated retroviral polynucleotide of claim 9, wherein the env gene encodes a polypeptide having, for every contiguous series of at least 30 amino acids, at least 70% identity with the peptide sequence SEQ ID NO: 10.--

*NR* --40. The isolated retroviral polynucleotide of claim 9, wherein the env gene encodes a polypeptide having, for every contiguous series of at least 30 amino acids, at least 80% identity with the peptide sequence SEQ ID NO: 10.--

*NR* --41. The isolated retroviral polynucleotide of claim 9, wherein the env gene encodes a polypeptide having, for every contiguous series of at least 30 amino acids, at least 90% identity with the peptide sequence SEQ ID NO: 10.--

*NR* --42. The isolated retroviral polynucleotide of claim 9, wherein the env gene encodes a polypeptide having, for every contiguous series of at least 30 amino acids, at least 95% identity with the peptide sequence SEQ ID NO: 10.--

*NR* --43. The retroviral polynucleotide according to claim 13, wherein said autoimmune disease is multiple sclerosis or rheumatoid arthritis.--

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(44) The polynucleotide fragment according to claim 14, wherein said fragment has, for every series of 100 contiguous monomers, at least 70% identity with the nucleic acid sequences of (i) or (ii).--

(45) The polynucleotide fragment according to claim 14, wherein said fragment has, for every series of 100 contiguous monomers, at least 80% identity with the nucleic acid sequences of (i) or (ii).--

(46) The polynucleotide fragment according to claim 14, wherein said fragment has, for every series of 100 contiguous monomers, at least 90% identity with the nucleic acid sequences of (i) or (ii).--

*DS* (47) The polynucleotide fragment according to claim 14, wherein said fragment has, for every series of 100 contiguous monomers, at least 95% identity with the nucleic acid sequences of (i) or (ii).--

(48) The polynucleotide fragment according to claim 15, wherein said fragment has, for every contiguous series of 100 contiguous monomers, at least 70% identity with the nucleic acid sequences of (i) or (ii).--

(49) The polynucleotide fragment according to claim 15, wherein said fragment has, for every contiguous series of 100 contiguous monomers, at least 80% identity with the nucleic acid sequences of (i) or (ii).--

~~50~~ NR The polynucleotide fragment according to claim 15, wherein said fragment has, for every contiguous series of 100 contiguous monomers, at least 90% identity with the nucleic acid sequences of (i) or (ii).--

~~51~~ NR The polynucleotide fragment according to claim 15, wherein said fragment has, for every contiguous series of 100 contiguous monomers, at least 95% identity with the nucleic acid sequences of (i) or (ii).--

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NR --52. The polynucleotide fragment according to claim 16, wherein said fragment has, for every series of at least 30 amino acids, at least 70% identity with a peptide sequence selected from the groups consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

NR --53. The polynucleotide fragment according to claim 16, wherein said fragment has, for every series of at least 30 amino acids, at least 80% identity with a peptide sequence selected from the groups consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

DS NR --54. The polynucleotide fragment according to claim 16, wherein said fragment has, for every series of at least 30 amino acids, at least 90% identity with a peptide sequence selected from the groups consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

NR --55. The polynucleotide fragment according to claim 16, wherein said fragment has, for every series of at least 30 amino acids, at least 95% identity with a peptide sequence selected from the groups consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

NR --56. The polynucleotide fragment according to claim 17, wherein said fragment has, for every series of at least 30 amino acids, at least 70% identity with a peptide sequence selected from the groups consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

*NR* --57. The polynucleotide fragment according to claim 17, wherein said fragment has, for every series of at least 30 amino acids, at least 80% identity with a peptide sequence selected from the groups consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

*NR* --58. The polynucleotide fragment according to claim 17, wherein said fragment has, for every series of at least 30 amino acids, at least 90% identity with a peptide sequence selected from the groups consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

*NR* --59. The polynucleotide fragment according to claim 17, wherein said fragment has, for every series of at least 30 amino acids, at least 95% identity with a peptide sequence selected from the groups consisting of SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 10, SEQ ID NO: 13, SEQ ID NO: 25 and SEQ ID NO: 26.--

~~(60)~~ The isolated polynucleotide according to claim 1, wherein said polynucleotide is DNA.--

~~(61)~~ The isolated polynucleotide according to claim 1, wherein said polynucleotide is RNA.--

*UT=45* ~~(62)~~ The isolated polynucleotide according to claim 1, wherein said polynucleotide is genomic DNA.--

~~(63)~~ A recombinant vector comprising the polynucleotide defined in claim 1.--

~~(64)~~ An expression vector comprising the polynucleotide defined in claim 1.--